UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
PARTHASARATHY, PRAMILA

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/877,302	SHACHAM ET AL.
	Examiner	Art Unit
	Pramila Parthasarathy	2136

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>04 April 2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-76</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-76</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/4/2005</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 18

DETAILED ACTION

1.   This action is in response to arguments or remarks filed on March 25, 2005.

Original application contained Claims 1 – 76. Applicant has not canceled any claims.

Applicant has amended claims 1, 9, 17, 25, 32, 36, 46, 52, 56, 60, 64, 66 and 71 – 76.

No new claims were added. Therefore, presently pending claims are 1 – 76.

Response to Arguments

2.   Applicant's arguments filed on March 25, 200, have been fully considered but

they are not persuasive for the following reasons:

Specification

The disclosure is objected to because of the following informalities: Page 2

paragraph [0022] reads, "The establishment ... secure network-based connection using

any of a number protocols.". Replace "... secure network-based connection using any

of a number protocols." with "... secure network-based connection using any number of

protocols.".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claims 1 – 76 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amended independent Claims 1, 9, 17, 25, 32, 36, 46, 52, 56, 60, 64, 66 and 71 – 76 read, " ...combining four individually encrypted....".

With respect to "four", although the specification discloses the web server waits until it receives b handshakes as a batch and provides an example for b=4, the specification does not disclose that b will always equal to 4. In fact, the specification discloses that the establishment of any secure network-based connection using any number of a protocols. The specification does not indicate how the value for b should always be equal to four. Applicant amendment does not clarify the steps of establishing of any secure network-based connection using exactly four number of a encrypted network security protection handshake messages and does not direct to any part of specification, which do not disclose "combining four individually encrypted network security protection handshake messages".

The dependent claims 2 – 8, 10 – 16, 18 – 24, 26 – 31, 33 – 35, 37 – 45, 47 – 51,

53 – 55, 57 – 59, 61 – 63 and 67 – 70 are rejected at least by virtue of their dependency

on the dependent claims.

4.   Claims 3, 4, 11, 12, 19, 20, 27, 28, 34, 35, 38, 39, 48, 49, 54, 55, 58, 59, 68 and

69 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the

written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in

the relevant art that the inventor(s), at the time the application was filed, had possession

of the claimed invention.

The dependent 3, 4, 11, 12, 19, 20, 27, 28, 34, 35, 38, 39, 48, 49, 54, 55, 58, 59,

68 and 69 read, " ...wherein the secure communications include transport layer security

("TLS") messages." and "wherein the secure communications include internet protocol

secure ("IPSec") techniques.".

With respect to "TLS" and "IPSec", although the specification discloses "currently,

the number of web sites using SSL and TLS to secure web traffic is growing" and

"Unfortunately, SSL and TLS are not cheap", the specification does not disclose that the

secure communications include transport layer security ("TLS") and the specification

does not disclose that the secure communications include internet protocol secure

("IPSec") techniques. Applicant amendment does not clarify the secure communications

to include transport layer security ("TLS") and the specification does not disclose that

the secure communications to include internet protocol secure ("IPSec") techniques nor

does the remark directs to any part of specification, which do discloses "the secure

communications include transport layer security ("TLS") and the secure communications

include internet protocol secure ("IPSec") techniques.

5.   Applicant agrees with the Examiner that the cited prior arts [Fiat U.S. Patent

4,964,164, hereinafter "Fiat", Corella (U.S. Patent Number 6,763,459, hereinafter

"Corella") and Rao et al. (U.S. Patent Number 6,757,823, hereinafter "Rao") disclose a

computation method for batch processing of public key encryption using a processor

and a registration authority that issues a first unsigned certificate that binds a public key

of the subject to long term identification information related to the subject and maintains

a certificate database. Furthermore, Rao discloses a method for providing secure

registration request message containing an encryption technique and public key is sent

from an encryption technique and public key is sent from an originating gateway over a

packet data network to terminating gateway. In fact, the instant application discloses the

technique for batch RSA decryption by Fiat wherein Fiat suggested that decrypting

multiple RSA cipher-texts as a batch would be faster than decrypting them one by one.

6.   Regarding currently amended claims 1, 9, 17, 25, 32, 36, 46, 52, 56, 60, 64, 66

and 71 – 76, Applicant argues that the cited prior art fails to teach "a batch of four is

optimal for key sizes commonly used in SSL and other network security protection

handshakes". This argument is not found persuasive. Applicant has not claimed "that a

batch of four is optimal for key sizes commonly used in SSL and other network security

protection handshakes" and does not disclose any supporting evidence that a batch of four is optimal for key sizes commonly used in SSL and other network security protection handshakes in the specification. Furthermore, Fiat discloses a method for efficiently transforming enciphered-message-data signals and generating signed-message-data signals in a batch mode (see Fiat Column 2 lines 60 – 66 and Column 7 lines 5 – 25).

7.   Therefore, the examiner respectfully asserts that the cited prior art does teach or suggest the amended subject matter, "a batch of four is optimal for key sizes commonly used in SSL and other network security protection handshakes" broadly recited in the amended independent claims 1, 9, 17, 25, 32, 36, 46, 52, 56, 60, 64, 66 and 71 – 76. The dependent claims 2 – 8, 10 – 16, 18 – 24, 26 – 31, 33 – 35, 37 – 45, 47 – 51, 53 – 55, 57 – 59, 61 – 63 and 67 – 70 are rejected at least by virtue of their dependency on the dependent claims and by other reason set forth in this office action. Accordingly, the rejection for the pending claims 1 – 76 is respectfully maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 5 – 9, 13 –17, 21 – 25, 29 –32, 46, 50 – 52, 56, 60 – 63, 75 and 76 are

rejected under 35 U.S.C. 102(b) as being anticipated by Fiat (U.S. Patent Number

4,964,164).

Regarding Claim 1, Fiat teaches and describes a method for secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising;

combining individually encrypted network security protection handshake

messages into a set of encrypted messages wherein each encrypted handshake

message is derived using a public key containing an encryption exponent (Column 1

line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20

– 56);

determining a root node of a binary tree comprising leaf nodes corresponding to

each encryption exponent (Column 3 lines 63 – Column 4 line 43 and Column 5 lines 20

– 50);

calculating a product of the encrypted messages (Column 4 lines12 – 43 and

Column 5 lines 20 – 50);

extracting at least one root from the product of the encrypted messages (Column

4 lines 12 – 58 and Column 5 lines 20 – 56); and

decrypting the encrypted messages by expressing the at least one root as at

least one promise and evaluating the at least one promise at the leaf nodes decreasing

the number of modular inversions wherein efficiency of the decryption is increased

(Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 9, Fiat teaches and describes a method for improving secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising;

combining individually encrypted network security protection handshake

messages into a set of encrypted messages wherein each encrypted handshake

message is derived using a public key containing an encryption exponent (Column 1

line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20

– 56);

determining a root node of a binary tree comprising leaf nodes corresponding to

the encryption exponent of each encrypted message (Column 3 lines 63 – Column 4

line 43 and Column 5 lines 20 – 50);

calculating a product of the encrypted messages (Column 4 lines12 – 43 and

Column 5 lines 20 – 50);

extracting at least one root from the product of the encrypted messages (Column

4 lines 12 – 58 and Column 5 lines 20 – 56); and

decrypting the encrypted messages by evaluating at least one individual leaf

node by multiplying an inversion of the total product of leaf nodes with a partial product

of the leaf nodes to produce an inversion of the at least one individual leaf node wherein

efficiency of the decryption is increased (Column 1 line 63 – Column 2 line 11 and

Column 6 line 53 – Column 7 line 4).

Regarding Claim 17, Fiat teaches and describes a method for secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising;

combining individually encrypted network security protection handshake

messages into a set of encrypted messages wherein each encrypted handshake

message is derived using a public key containing an encryption exponent (Column 1

line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20

– 56);

determining a root node of a binary tree comprising leaf nodes corresponding to

the encryption exponent of each encrypted message (Column 3 lines 63 – Column 4

line 43 and Column 5 lines 20 – 50);

calculating a product of the encrypted messages (Column 4 lines12 – 43 and

Column 5 lines 20 – 50);

extracting at least one root from the product of the encrypted messages (Column

4 lines 12 – 58 and Column 5 lines 20 – 56);

decrypting the encrypted messages by minimizing the disparity between

the sizes of the encryption exponents of the public keys, wherein efficiency of

the secure communications is increased (Column 1 line 63 – Column 2 line 11 and

Column 6 line 53 – Column 7 line 4).

Regarding Claim 25, Fiat teaches and describes a method for improving secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising:

combining individually encrypted network security protection handshake into a

set of encrypted messages wherein each encrypted handshake message is derived

using a public key containing an encryption exponent (Column 1 line 25 – Column 2 line

57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

determining a root node of a binary tree comprising leaf nodes corresponding to

each encryption exponent by using a plurality of separate parallel batch trees finding the

root node of each tree and combining the final answers (Column 3 lines 63 – Column 4

line 43 and Column 5 lines 20 – 50);

calculating a product of the encrypted messages (Column 4 lines12 – 43 and

Column 5 lines 20 – 50);

extracting at least one root from the product of the encrypted messages (Column

4 lines 12 – 58 and Column 5 lines 20 – 56); and

decrypting the encrypted messages by expressing the at least one root as

at least one promise and evaluating the at least one promise at the leaf nodes

producing a reduced number of modular inversions wherein efficiency of establishing

secure communications is increased (Column 1 line 63 – Column 2 line 11 and Column

6 line 53 – Column 7 line 4).

Regarding Claim 32, Fiat teaches and describes a method for secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising;

combining individually encrypted network security protection messages into a set

of encrypted messages, wherein each encrypted handshake message is derived using

a public key containing an encryption exponent (Column 1 line 25 – Column 2 line 57;

Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

determining a root node of a binary tree comprising leaf nodes corresponding to

each encrypted messages encryption exponent (Column 3 lines 63 – Column 4 line 43

and Column 5 lines 20 – 50);

calculating a product of the encrypted messages (Column 4 lines 12 – 43 and

Column 5 lines 20 – 50);

minimizing the disparity among the sizes of the encryption exponents of the

public keys within the set (Column 2 line 67 – Column 3 line 20 and Column 4 lines 1 –

11);

extracting at least one root from the product of the encrypted messages (Column

4 lines 12 – 58 and Column 5 lines 20 – 56); and

decrypting the encrypted messages by evaluating the at least one leaf node by

multiplying an inversion of a total product of the leaf nodes with a partial product of the

leaf nodes to produce the inversion of the at least one leaf node wherein efficiency of

establishing secure network communications is increased (Column 1 line 63 – Column 2

line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 46, Fiat teaches and describes a method for batch decryption in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), comprising:

combining a plurality of encrypted messages into a plurality of batches, wherein each encrypted message includes a public / private key pair, each public key comprising an encryption exponent (Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

scheduling the batches of encrypted messages using a plurality of criteria selected from a group including maximum throughput, minimum turnaround-time, minimum turnaround-time variance, and server load considerations, wherein the efficiency of establishing secure communications is enhanced (Column 3 lines 34 – 56); and

replacing at least one inversion of at least one batch decryption operation with a single inversion and a plurality of multiplication operations, wherein the speed of the decryption is significantly improved (Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 52, Fiat teaches and describes 52. A method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), comprising;

combining individually encrypted network security protection handshake messages into a set of encrypted handshake messages wherein each encrypted

message is derived using a public key comprising an encryption exponent (Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

determining a root node of a binary tree containing leaf nodes corresponding to each encrypted message encryption exponent by using a plurality of separate parallel batch trees finding the root node of each tree and combining the final answers (Column 3 lines 63 – Column 4 line 43 and Column 5 lines 20 – 50);

minimizing the disparity between the sizes of the encryption exponents of the public keys within the set; using simultaneous multiple exponentiation such that the encryption exponents are combined to reduce the number of exponentiations (Column 3 lines 34 – 56);

calculating a product of the encrypted messages (Column 4 lines12 – 43 and Column 5 lines 20 – 50);

extracting at least one root from the product of the encrypted messages (Column 4 lines 12 – 58 and Column 5 lines 20 – 56); and

decrypting the encrypted messages by expressing the at least one root as at least one promise and evaluating the at least one promise at the leaf nodes, and multiplying an inversion of a total product of the leaf nodes with a partial product of the leaf nodes decreasing the number of modular inversions by producing an inversion of the leaf node wherein efficiency of secure communications is increased (Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 56, Fiat teaches and describes a method for performing batch

decryption in a computer network (Fig. 1; Objects and summary of the invention and

Column 3 line 57 – Column 7 line 17), comprising:

receiving a plurality of encrypted messages generated using a plurality

of public keys, wherein the plurality of public keys share a common modulus (Column 1

line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20

– 56);

forming a binary tree using leaf nodes corresponding to the plurality of

public keys; placing each of the plurality of encrypted messages in a leaf node having

a corresponding public key (Column 4 lines 59 – 64);

percolating the plurality of encrypted messages up the binary tree to form a root

node including a product of the encrypted messages, extracting at least one root from

the product of the encrypted messages by forming an exponentiation product in the root

node (Column 4 lines 12 – 58 and Column 5 lines 20 – 56);

expressing the at least one root using at least one promise that includes at least

one alternative representation of at least one arithmetic function of the at least one root;

percolating the at least one root down the binary tree using the at least one promise

(Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column

5 lines 20 – 56); and

decrypting the plurality of encrypted messages by evaluating the at least one

promise at the leaf nodes, wherein efficiency of the decryption is increased by reducing

a number of modular inversions and a number of root extractions (Column 1 line 63 –

Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 75, Fiat teaches and describes a computer-readable medium,

comprising executable instructions for establishing secure communications in a

computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 –

Column 7 line 17), which, when executed in a processing system, causes the system to:

combine individually encrypted network security protection handshake messages

into a set of encrypted messages wherein each encrypted handshake message is

derived using a public key comprising an encryption exponent (Column 1 line 25 –

Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

determine a root node of a binary tree containing leaf nodes corresponding to

each encrypted messages encryption exponent by using a plurality of separate parallel

batch trees to find the root node of each tree and combine the final answers (Column 3

lines 63 – Column 4 line 43 and Column 5 lines 20 – 50);

minimize the disparity between the sizes of the encryption exponents of the

public keys within the set; combine the encryption exponents using simultaneous

multiple exponentiation such that the number of exponentiations is reduced (Column 3

lines 34 – 56);

calculate a product of the encrypted messages (Column 4 lines 12 – 43 and

Column 5 lines 20 – 50);

extract at least one root from the product of the encrypted messages (Column 4

lines 12 – 58 and Column 5 lines 20 – 56); and

decrypt the encrypted messages by expressing the at least one root as at

least one promise and evaluating the at least one promise at the leaf nodes, multiplying

an inversion of a total product of the leaf nodes with a partial product of the leaf nodes

producing an inversion of the leaf node and decreasing the number of modular

inversions, wherein efficiency of establishing secure communications is increased

(Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Regarding Claim 76, Fiat teaches and describes an electromagnetic medium,

comprising executable instructions for establishing secure communications in a

computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 –

Column 7 line 17), which, when executed in a processing system, causes the system to;

combine individually encrypted secure network handshake messages into a set

of encrypted handshake messages wherein each encrypted handshake message is

derived using a public key comprising an encryption exponent (Column 1 line 25 –

Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56);

determine a root node of a binary tree containing leaf nodes corresponding to

each encrypted messages encryption exponent by using a plurality of separate parallel

batch trees to find the root node of each tree and combine the final answers (Column 3

lines 63 – Column 4 line 43 and Column 5 lines 20 – 50);

minimize the disparity between the sizes of the encryption exponents of the

public keys within the set; combine the encryption exponents using simultaneous

multiple exponentiation such that the number of exponentiations is reduced (Column 3

lines 34 – 56);

calculate a product of the encrypted messages (Column 4 lines12 – 43 and

Column 5 lines 20 – 50);

extract at least one root from the product of the encrypted messages (Column 4

lines 12 – 58 and Column 5 lines 20 – 56); and

decrypt the encrypted messages by expressing the at least one root as at

least one promise and evaluating the at least one promise at the leaf nodes, multiplying

an inversion of a total product of the leaf nodes with a partial product of the leaf nodes

producing an inversion of the leaf node, and decreasing the number of modular

inversions wherein efficiency of establishing secure communications is increased

(Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Claims 5, 24 and 30 are rejected as applied above in rejecting claims 1, 17 and

25. Furthermore, Fiat teaches and describes a method for secure communications in a

computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 –

Column 7 line 17) wherein evaluating the at least one promise includes multiplying an

inversion of a total product of the leaf nodes with a partial product of the leaf nodes to

produce the inversion of an individual leaf node (Column 4 line 59 – Column 5 line 17).

Claims 6, 13 and 31 are rejected as applied above in rejecting claims 1, 9 and

25. Furthermore, Fiat teaches and describes a method for secure communications in a

computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 –

Column 7 line 17), further comprising minimizing the disparity among the sizes of the

encryption exponents of the public keys within the set (Column 4 line 59 – Column 5 line

17 and Column 7 lines 5 – 17).

Claims 7, 14, 21 and 50 are rejected as applied above in rejecting claims 1, 9, 17

and 46. Furthermore, Fiat teaches and describes a method for secure communications

in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line

57 – Column 7 line 17) wherein determining includes using a plurality of separate,

parallel batch trees finding the root node of each tree and combining the final answers

(Column 5 line 5 – 49).

Claims 8, 15, 22 and 29 are rejected as applied above in rejecting claims 1, 9, 17

and 25. Furthermore, Fiat teaches and describes a method for secure communications

in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line

57 – Column 7 line 17), wherein decrypting includes simultaneous multiple

exponentiation such that the encryption exponents are combined to reduce the number

of exponentiations (Column 4 line 59 – Column 5 line 17 and Column 6 line 53 –

Column 7 line 4).

Claims 16 and 23 are rejected as applied above in rejecting claims 9 and 17. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein decrypting includes expressing the at least one root as at least one promise and evaluation the at least one promise at the leaf nodes decreasing the number of modular inversions (Column 4 line 59 – Column 5 line 17).

Claim 51 is rejected as applied above in rejecting claim 46. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein combining includes selecting the encrypted messages for the batches by balancing the encryption exponent (Column 4 line 45 – Column 5 line 10).

Claim 60 is rejected as applied above in rejecting claim 56. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein evaluating the at least one promise uses batched division to calculate a plurality of inverses for the plurality of leaf nodes using a single modular inversion, wherein the single modular inversion is multiplied with a partial product at each leaf node to produce a corresponding inverse for the leaf node.

Claim 61 is rejected as applied above in rejecting claim 56. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), further comprising: reducing each of the plurality of encrypted messages modulo p and q; generating two parallel batch trees modulo p and q; and batching in each of the two parallel batch trees modulo p and q (Column 5 line 5 – 49).

Claim 62 is rejected as applied above in rejecting claim 56. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein the percolating includes balanced exponents (Column 4 line 45 – Column 5 line 10).

Claim 63 is rejected as applied above in rejecting claim 56. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein the percolating includes simultaneous multiple exponentiation (Column 4 line 59 – Column 5 line 17 and Column 6 line 53 – Column 7 line 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 2, 10, 18, 26, 33, 36, 37, 40 – 45, 47, 53, 57, 64 –67 and 70 – 74 are

rejected under 35 U.S.C. 103(a) as being unpatentable over Fiat (U.S. Patent Number

4,964,164, hereinafter "Fiat") in view of Corella (U.S. Patent Number 6,763,459,

hereinafter "Corella").

Regarding Claim 36, Fiat teaches and describes a method for secure

communications in a computer network (Fiat Fig. 1; Objects and summary of the

invention and Column 3 line 57 – Column 7 line 17). Fiat does not explicitly disclose a

computer network comprising coupling a client to a web server, sending a client hello

message to the web server, generating a public / private key pair at the web server,

wherein the public key contains an encryption exponent; and responding to the client

with a server hello message comprising the public key. However, Corella discloses a

PKI infrastructure including an online registration authority, an off-line credential server,

and a verifier (Corella Summary; Fig. 12 – 16 and Column 5 line 6 – Column 15 line 24)

wherein, the credential server is linked by one or more computer networks and a

network connections comprising:

coupling a client to a web server (Corella Column 6 lines 36 – 50; Column 13

lines 19 – 24 and Column 14 lines 25 – 33);

sending a client hello message to the web server (Corella Column 8 lines 16 – 22

and Column 10 lines 41 – 48);

generating a public / private key pair at the web server, wherein the

public key contains an encryption exponent responding to the client with a server hello

message comprising the public key (Corella Column 6 line 51 – Column 7 line 23 and

Column 11 lines 32 – 37);

encrypting a random handshake message at the client using the public

key (Corella Column 13 lines 51 – 54);

sending the encrypted handshake message to a batch-decryption server (Corella

Column 13 lines 60 – 65);

batching handshake messages on a batch-decryption server according to

the public key such that the disparity between the sizes of the encryption exponents of

the public key is minimized (Fiat Column 1 line 25 – Column 2 line 57; Column 3 line 63

– Column 4 line 43 and Column 5 lines 20 – 56);

separating the batch's e^{th} root in a downward-percolation phase into constituent

decrypted messages, wherein internal inversions are converted to modular divisions

increasing efficiency by producing a reduced number of modular inversions (Fiat

Column 4 lines 12 – 58 and Column 5 lines 20 – 56);

scheduling the batch-decryption server based on server-load considerations (Fiat

Column 7 lines 5 – 25);

decrypting the handshake messages using at least one alternate expression of at least on arithmetic function of at least one batch's eth root, an sending the decrypted message to the web server (Fiat Column 1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method to batching handshake messages for encrypting and decrypting as taught by Fiat in the combined system to provide secure communication with a client coupling to a web server and generating a public/private key pair at the web server as taught by Corella. The modification would be obvious because of one of ordinary skill in the art would be motivated to batch signature/encryption processing or any public key encryption scheme from clients for fast method for extracting multiple roots multiple roots and a fast method for computing products in a client/server environment.

Regarding Claim 64, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17). Fiat discloses generating a Rivest-Shamir-Adleman ("RSA") public / private key pair and combining individually encrypted messages to form a batch (Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56); decrypting the batch of messages using the RSA private keys to determine R, wherein the efficiency of the decryption is enhanced by replacing at least one inversion with at least one multiplication (Column 1

line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4). Fiat does not

disclose generating a Rivest-Shamir-Adleman ("RSA") public / private key pair at a web

server; coupling a client to the web server; sending a client hello message to the web

server requesting the establishment of a Secure Socket Layer ("SSL"); responding to

the client with a server hello message containing the RSA public key; encrypting a

random string R, the pre-master secret at the client, using the RSA public key, wherein

the resulting cipher-text, C, contains R; sending the encrypted cipher-text message, C,

to the web server; combining individually encrypted secure socket layer ("SSL")

encrypted cipher-text messages to form a batch and establishing a common session

key between the web server and the client using R. However, Corella discloses a PKI

infrastructure including an online registration authority, an off-line credential server, and

a verifier (Corella Summary; Fig. 12 – 16 and Column 5 line 6 – Column 15 line 24)

wherein, the credential server is linked by one or more computer networks and a

network connections comprising:

　　　　generating a Rivest-Shamir-Adleman ("RSA") public / private key pair at the web

server (Corella Column 6 line 51 – Column 7 line 23 and Column 11 lines 32 – 37);

　　　　coupling a client to a web server (Corella Column 6 lines 36 – 50; Column 13

lines 19 – 24 and Column 14 lines 25 – 33);

　　　　sending a client hello message to the web server requesting the establishment of

a Secure Socket Layer ("SSL") (Corella Column 8 lines 16 – 22 and Column 10 lines 41

– 48);

encrypting a random string R, the pre-master secret at the client, using the RSA

public key wherein the resulting cipher-text, C, contains R (Corella Column 13 lines 51 –

54);

sending the encrypted cipher-text message to a batch (Corella Column 13 lines

60 – 65); and

establishing a common session key between the web server and the client using

R (Corella Column 13 lines 51 – 65).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the method to batching handshake

messages for encrypting and decrypting as taught by Fiat in the combined system to

provide secure communication with a client coupling to a web server and generating a

public/private key pair at the web server as taught by Corella. The modification would be

obvious because of one of ordinary skill in the art would be motivated to batch

signature/encryption processing or any public key encryption scheme from clients for

fast method for extracting multiple roots multiple roots and a fast method for computing

products in a client/server environment.

Regarding Claim 66, Fiat teaches and describes a system for secure

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17). Fiat discloses receiving requests for

decryption of a plurality of individually encrypted network secure protection messages,

aggregates the plurality of individually encrypted messages into at least one batch

wherein each encrypted message is derived by using an encryption exponent from an

Rivest-shamir-Adleman ("RSA") public / private key pair, forms a binary tree containing

leaf nodes corresponding to each encryption exponent, extracts at least one root from a

product of the encrypted messages (Column 1 line 25 – Column 2 line 57; Column 3

line 63 – Column 4 line 43 and Column 5 lines 20 – 56). Fiat does not disclose at least

one batch server coupled among the at least one client processor and the at least one

web servers wherein the at least one batch server receives requests for decryption of a

plurality of individually encrypted network secure protection handshake messages,

aggregates the plurality of individually encrypted handshake messages into at least one

batch. However, Corella discloses a PKI infrastructure including an online registration

authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16

and Column 5 line 6 – Column 15 line 24) wherein, the credential server is linked by one

or more computer networks and a network connections comprising:

at least one client processor (Corella Column 6 line 36 – 50; Column 13 lines 19

– 24 and Column 14 lines 25 – 33);

at least one web server (Corella Column 8 lines 16 – 22 and Column 10 lines 41

– 48); and

at least one batch server coupled among the at least one client processor and

the at least one web servers wherein the at least one batch server receives requests for

decryption of a plurality of individually encrypted network secure protection handshake

messages, aggregates the plurality of individually encrypted handshake messages into

at least one batch wherein each encrypted message is derived by using an encryption

exponent from an Rivest-shamir-Adleman ("RSA") public / private key pair, forms a

binary tree containing leaf nodes corresponding to each encryption exponent, extracts

at least one root from a product of the encrypted messages (Fiat Column 1 line 25 –

Column 2 line 57; Column 3 line 63 – Column 4 line 43; Column 5 lines 20 – 56 and

Corella Column 6 lines 36 – Column 7 line 23; Column 8 lines 16 – 22; Column 11 lines

32 – 37),

decrypts the encrypted messages by expressing the at least one root as at least

one promise and evaluating the at least one promise at the leaf nodes; and multiplies an

inversion of a total product of the leaf nodes with a partial product of the leaf nodes

producing an inversion of the leaf node decreasing the number of modular inversions,

and responds to the requests for decryption with corresponding plain-text (Fiat Column

1 line 63 – Column 2 line 11 and Column 6 line 53 – Column 7 line 4).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the method to batching handshake

messages for encrypting and decrypting as taught by Fiat in the combined system to

provide secure communication with a client coupling to a web server and generating a

public/private key pair at the web server as taught by Corella. The modification would be

obvious because of one of ordinary skill in the art would be motivated to batch

signature/encryption processing or any public key encryption scheme from clients for

fast method for extracting multiple roots multiple roots and a fast method for computing

products in a client/server environment.

Regarding Claim 71, Fiat teaches and describes a system for secure

communications in a computer network (Fiat Fig. 1; Objects and summary of the

invention and Column 3 line 57 – Column 7 line 17), receives requests for decryption of

a plurality of individually encrypted network security protection messages, aggregates

the plurality of individually encrypted messages into at least one batch wherein each

encrypted message is derived using an encryption exponent from an Rivest-shamir-

Adleman ("RSA") public / private key pair, forms a binary tree containing leaf nodes

corresponding to each encryption exponent, extracts at least one root from a product of

the encrypted messages (Fiat Column 4 lines 12 – 58 and Column 5 lines 20 – 56),

decrypts the encrypted messages by expressing the at least one root as at least one

promise and evaluating the at least one promise at the leaf nodes, and multiplies an

inversion of a total product of the leaf nodes with a partial product of the leaf nodes

producing an inversion of the leaf node decreasing the number of modular inversions,

wherein efficiency of secure communications is increased (Column 1 line 25 – Column 2

line 57; Column 3 line 63 – Column 4 line 43; Column 5 lines 20 – 56 and Column 6 line

53 – Column 7 line 4). Fiat does not explicitly disclose a client processor coupled

among at least one web server, wherein the web server receives requests for

decryption of a plurality of individually encrypted network security protection handshake

messages.

However, Corella discloses a PKI infrastructure including an online registration

authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16

and Column 5 line 6 – Column 15 line 24) wherein, the credential server is linked by one

or more computer networks and a network connections comprising: at least one client

processor coupled among at least one web server, wherein the web server receives

requests for decryption of a plurality of individually encrypted network security protection

handshake messages (Corella Column 6 lines 36 – 50; Column 8 lines 16 – 22; Column

10 lines 41 – 48; Column 13 lines 19 – 24 and Column 14 lines 25 – 33).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the method to batching handshake

messages for encrypting and decrypting as taught by Fiat in the combined system to

provide secure communication with a client coupling to a web server and generating a

public/private key pair at the web server as taught by Corella. The modification would be

obvious because of one of ordinary skill in the art would be motivated to batch

signature/encryption processing or any public key encryption scheme from clients for

fast method for extracting multiple roots multiple roots and a fast method for computing

products in a client/server environment.

Regarding Claim 72, Fiat teaches and describes a system of scheduling batch

decryption in a computer network (Fiat Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), comprising:

using a Rivest-shamir-Adleman ("RSA") decryption algorithm, wherein the at

least one batch server links the plurality of client processors to the at least one web

server; and a scheduler, wherein during a timed period the scheduler places arriving

encrypted messages in a queue forming a batch, wherein the encrypted messages in

the queue are decrypted upon completion of the timed period (Fiat Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43; Column 5 lines 20 – 56 and Column 6 line 53 – Column 7 line 4). Fiat does not explicitly disclose a plurality of client processor, at least one web server, at least one batch server coupled among the at least one web server.

However, Corella discloses a PKI infrastructure including an online registration authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16 and Column 5 line 6 – Column 15 line 24) wherein, the credential server is linked by one or more computer networks and a network connections comprising: at least one client processor coupled among at least one web server, wherein a plurality of client processors; at least one web server; at least one batch server coupled among the at least one web server (Corella Column 6 lines 36 – 50; Column 8 lines 16 – 22; Column 10 lines 41 – 48; Column 13 lines 19 – 24 and Column 14 lines 25 – 33).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method to batching handshake messages for encrypting and decrypting as taught by Fiat in the combined system to provide secure communication with a client coupling to a web server and generating a public/private key pair at the web server as taught by Corella. The modification would be obvious because of one of ordinary skill in the art would be motivated to batch signature/encryption processing or any public key encryption scheme from clients for fast method for extracting multiple roots multiple roots and a fast method for computing products in a client/server environment.

Regarding Claim 73, Fiat teaches and describes a system for secure network

communications in a computer network (Fig. 1; Objects and summary of the invention

and Column 3 line 57 – Column 7 line 17), generating a Rivest-Shamir-Adleman

("RSA") public / private key pair and combining individually encrypted messages to form

a batch algorithm to decrypt an aggregation of encrypted messages (Column 1 line 25 –

Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56).

Fiat does not explicitly disclose a plurality of client processor, at least one web server, at

least one batch server coupled among the at least one web server.

However, Corella discloses a PKI infrastructure including an online registration

authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16

and Column 5 line 6 – Column 15 line 24) comprising at least one batch server coupled

among at least one client processor and at least one web server, wherein the at least

one batch server uses a Rivest-shamir-Adleman ("RSA") (Corella Column 6 lines 36 –

50; Column 8 lines 16 – 22; Column 10 lines 41 – 48; Column 13 lines 19 – 24 and

Column 14 lines 25 – 33).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the method to batching handshake

messages for encrypting and decrypting as taught by Fiat in the combined system to

provide secure communication with a client coupling to a web server and generating a

public/private key pair at the web server as taught by Corella. The modification would be

obvious because of one of ordinary skill in the art would be motivated to batch

signature/encryption processing or any public key encryption scheme from clients for

fast method for extracting multiple roots multiple roots and a fast method for computing products in a client/server environment.

Regarding Claim 74, Fiat teaches and describes a system for secure computer network communications (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), combines decryption requests messages into at least one batch and decrypts the at least one batch using a Rivest-shamir-Adleman ("RSA") batch decryption algorithm (Column 1 line 25 – Column 2 line 57; Column 3 line 63 – Column 4 line 43 and Column 5 lines 20 – 56). Fiat does not explicitly disclose the messages of Secure Socket Layer ("SSL"). However, Corella discloses a PKI infrastructure including an online registration authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16 and Column 5 line 6 – Column 15 line 24) comprising at least one batch server coupled among at least one client processor and at least one web server and the messages of Secure Socket Layer ("SSL"), wherein the at least one batch server uses a Rivest-shamir-Adleman ("RSA") (Corella Column 6 lines 36 – 50; Column 8 lines 16 – 22; Column 10 lines 41 – 48; Column 13 lines 19 – 24 and Column 14 lines 25 – 33).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method to batching handshake messages for encrypting and decrypting as taught by Fiat in the combined system to provide secure communication with a client coupling to a web server and generating a public/private key pair at the web server as taught by Corella. The modification would be obvious because of one of ordinary skill in the art would be motivated to batch

signature/encryption processing or any public key encryption scheme from clients for

fast method for extracting multiple roots multiple roots and a fast method for computing

products in a client/server environment.

Claims 2, 10, 18, 26, 33, 37, 47, 53, 57and 67 are rejected as applied above in

rejecting claims 1, 9, 17, 25, 32, 36, 46, 52, 56 and 66. Furthermore, Fiat teaches and

describes a method for secure communications in a computer network (Fig. 1; Objects

and summary of the invention and Column 3 line 57 – Column 7 line 17). Fiat does not

explicitly disclose the secure communications include secure socket layer ("SSL")

messages.

However, Corella discloses a PKI infrastructure including an online registration

authority, an off-line credential server, and a verifier (Corella Summary; Fig. 12 – 16

and Column 5 line 6 – Column 15 line 24) comprising at least one batch server coupled

among at least one client processor and at least one web server wherein the secure

communications include Secure Socket Layer ("SSL") (Corella Column 6 lines 36 – 50;

Column 8 lines 16 – 22; Column 10 lines 41 – 48; Column 13 lines 19 – 24 and Column

14 lines 25 – 33).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to incorporate the method to batching handshake

messages for encrypting and decrypting as taught by Fiat in the combined system to

provide secure communication with a client coupling to a web server with "SSL" as

taught by Corella. The modification would be obvious because of one of ordinary skill in

the art would be motivated to batch signature/encryption processing or any public key

encryption scheme from clients for fast method for extracting multiple roots multiple

roots and a fast method for computing products in a secure client/server environment.

Claim 40 is rejected as applied above in rejecting claim 36. Furthermore, Fiat

teaches and describes a method for secure communications in a computer network

(Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line

17), wherein batching further comprises an upward-percolation phase that combines

individual encrypted messages to form a value, v wherein v is the product of the

individual encrypted messages raised to the power of e/e_1, e being the product of all

individual encryption exponents e_1 (Column 5 line 5 – 40).

Claim 41 is rejected as applied above in rejecting claim 36. Furthermore, Fiat

teaches and describes a method for secure communications in a computer network

(Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line

17), wherein the value v is determined by the equation where e is the product of

individual exponentiation exponents, v_i is the individual encrypted message, e_i is the

individual public key, and b is the number of encrypted messages in a particular

batch (Fig. 1 "message data signals" and Column 5 line 21 – Column 6 line 39).

Claim 42 is rejected as applied above in rejecting claim 36. Furthermore, Fiat

teaches and describes a method for secure communications in a computer network

(Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein batching further comprises an exponentiation phase that includes the extraction of an eth root from the value, v (Column 5 lines 52 – 54).

Claim 43 is rejected as applied above in rejecting claim 36. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein exponentiation further includes simultaneous multiple exponentiation such that the encryption exponents are combined to reduce the number of exponentiations (Column 4 line 59 – Column 5 line 17 and Column 6 line 53 - Column 7 line 4).

Claim 44 is rejected as applied above in rejecting claim 36. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein exponentiation includes combining a plurality of inversions to form a single modular inversion (Column 4 line 12 – Column 5 line 56).

Claim 45 is rejected as applied above in rejecting claim 36. Furthermore, Fiat teaches and describes a method for secure communications in a computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line 17), wherein decrypting includes reducing each encrypted batch message into a

separate module, using separate parallel batch trees to determine the module, and

combining the final answers (Column 5 line 5 – 49)

Claim 65 is rejected as applied above in rejecting claim 36. Furthermore, Fiat

teaches and describes a method for secure communications in a computer network

(Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line

17), wherein decrypting includes using at least one alternative representation of at least

one arithmetic function to reduce to the number of inversions (Column 4 line 49 –

Column 5 line 17 and Column 6 line 53 – Column 7 line 4).

Claim 70 is rejected as applied above in rejecting claim 66. Furthermore, Fiat

teaches and describes a method for secure communications in a computer network

(Fig. 1; Objects and summary of the invention and Column 3 line 57 – Column 7 line

17), wherein the batch server aggregates the plurality of encrypted messages base on

criteria including maximum throughput, minimum turnaround time, and minimum

turnaround time variance (Column 1 line 63 – Column 2 line 11 and Column 6 line 53 –

Column 7 line 4).

10.   Claims 3, 4, 11, 12, 19, 20, 27, 28, 34, 35, 38, 39, 48, 49, 54, 55, 58, 59, 68 and

69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fiat (U.S. Patent

Number 4,964,164, hereinafter "Fiat") in view of Corella (U.S. Patent Number

6,763,459, hereinafter "Corella") and further in view of Rao et al. (U.S. Patent Number

6,757,823, hereinafter "Rao").

Claims 3, 4, 11, 12, 19, 20, 27, 28, 34, 35, 38, 39, 48, 49, 54, 55, 58, 59, 68 and

69 are rejected as applied above in rejecting claims 1, 9, 17, 25, 32, 36, 46, 52, 56 and

66. Furthermore, Fiat teaches and describes a method for secure communications in a

computer network (Fig. 1; Objects and summary of the invention and Column 3 line 57 –

Column 7 line 17). Fiat does not explicitly disclose the secure communications include

transport layer security ("TLS") messages or "IPSec" messages. Corella discloses a PKI

infrastructure including an online registration authority, an off-line credential server, and

a verifier (Corella Summary; Fig. 12 – 16 and Column 5 line 6 – Column 15 line 24)

comprising at least one batch server coupled among at least one client processor and at

least one web server wherein the secure communications (Corella Column 6 lines 36 –

50; Column 8 lines 16 – 22; Column 10 lines 41 – 48; Column 13 lines 19 – 24 and

Column 14 lines 25 – 33). Even when combined, Fiat and Corella do not teach that the

secure communications include transport layer security ("TLS") messages and "IPSec"

messages.

However, Rao discloses a method of providing secure connections for network

telephony calls, wherein a call signaling channel is secured by using either a Transport

Layer Security Protocol ("TLS"), a Secure Sockets Layer ("SSL") or an IP Security

Protocol (IPSec) on a secure well known port (Column 1 line 15 – 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to incorporate the method to batching handshake messages for

encrypting and decrypting as taught by Fiat in the combined system to provide secure

communication with a client coupling to a web server with "TLS" or "IPSec" as taught by

Rao. The modification would be obvious because of one of ordinary skill in the art would

be motivated to batch signature/encryption processing or any public key encryption

scheme from clients for fast method for extracting multiple roots multiple roots and a

fast method for computing products in a secure client/server environment.

Conclusion

11.   Examiner's Note: Examiner has cited particular columns and line numbers in the

references as applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings in the art and are

applied to the specific limitations within the individual claim, other passages and figures

may apply as well. It is respectfully requested from the applicant, in preparing the

responses, to fully consider the references in entirety as potentially teaching all or part

of the claimed invention, as well as the context of the passage as taught by the prior art

or disclosed by the examiner.

12.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. See PTO Form 892.

Applicant is urged to consider the references. However, the references should be

evaluated by what they suggest to one versed in the art, rather than by their specific

disclosure. If applicants are aware of any better prior art than those are cited, they are

required to bring the prior art to the attention of the examiner.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pramila Parthasarathy whose telephone number is 571-272-3866. The examiner can normally be reached on 8:00a.m. To 5:00p.m.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-232-3795. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR only. For more information about the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pramila Parthasarathy
June 01, 2005.
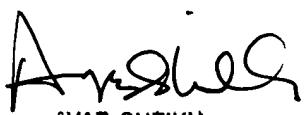
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